

Application No. 10/715,897
Amendment dated May 22, 2006
Reply to Office Action of November 21, 2005

Docket No.: HO-P02894US0

AMENDMENTS TO THE DRAWINGS

The attached sheet(s) of drawings includes changes to figure 8 to clarify the configuration of claim 1. Applicants assert that no new matter has been added.

Attachment: Replacement sheet

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REMARKS

Claims 1-12 are pending in the application. No claims have been amended. A replacement figure for Figure 8 is included herein. This replacement figure is added to identify all the elements of independent claim 1. Support for the elements in Figure 8 is clearly found in the specification in paragraphs [0102], [0104] and [0105]. Applicants also have amended these paragraphs of the Specification to add the new referenced elements of Figure 8. Applicants assert that no new subject matter has been added to the Specification by these amendments.

The issues in the Office Action are:

- Drawings are objected to under 37 CFR 1.83(a).
- Claims 1-12 are rejected under 35 U.S.C. § 112, first paragraph as allegedly failing to comply with the enablement requirement.
- Claims 1-3 and 7-12 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by McNeely et al. (U.S. Patent No. 6,591,852).
- Claims 4-6 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over McNeely et al. in view of Kellogg et al. (US 6,063,598).

Applicants respectfully traverse the objections and rejections for the reasons given herein.

I. Drawings

The Examiner has objected to the drawings under 37 CFR 1.83(a). Applicants have submitted herewith a replacement drawing for Figure 8 which clearly identifies every feature of the independent claim. Applicants assert that no new matter has been added. In view of the replacement drawing, Applicants request that the Examiner withdrawal the objection.

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II. Rejection under 35 U.S.C. 112, first paragraph

Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph as failing to comply with the enablement requirement. Applicants traverse.

The Examiner indicates that the claimed subject matter is not enabled because the particular configuration of a branch channel, trunk channel, inlet, outlet and stopping means is not described. Applicants are confused as to whether this is an enablement or a written description rejection. Regardless of the rejection, Applicants request that this rejection be removed in light of the amendments to Figure 8 and the Specification. In view of these amendments, Applicants assert that the subject matter of claim 1 is described.

III. Rejection under 35 U.S.C. 102

Claims 1-12 are rejected under U.S.C. 102 as being anticipated by McNeely et al. (6,591,852). The Examiner believes that the configuration shown in Figures 2A-2D of McNeely meets the arrangement of trunk channel, branch channel, inlet, outlet and fluid impedance of claim 1. Applicants traverse.

McNeely shows that channel 2 fills up to the valve/impedance region b with no liquid passing the valve/impedance region a (FIG. 2B). However, upon further increase of the liquid pressure, the liquid will pass region a in filling channel 1 (FIG. 2C). When the liquid in channel 1 reaches region b (FIG. 2D), the valve function at this region is destroyed and liquid from both channel 1 and channel 2 flow downstream of region b in channel 1 and, hence mixing is accomplished. See also col. 14, lns. 1-38. The Examiner believes that this configuration meets the limitations of independent claim 1. However, Applicants remind the Examiner that anticipation of a claim is only established where "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed.Cir. 1987). For the Examiner's convenience, Applicants have inserted below pending claim 1:

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A device for metering a microfluidic plug of fluid from a larger fluidic volume, the device comprising:

a trunk channel having a fluidic inlet and a fluidic outlet; and

a microfluidic branch channel in direct, independent fluid communication with the trunk channel, the branch channel having a fluidic impedance region;

wherein the trunk channel, branch channel, fluidic inlet, fluidic outlet, and fluidic impedance are arranged to permit a first fluid to be supplied through the trunk channel to fill the branch channel to the fluidic impedance region, and thereafter to permit the fluidic contents of the trunk channel to be flushed through the fluidic outlet while the branch channel remains substantially filled.

It appears that the Examiner has not considered all the limitations of claim 1. Claim 1 requires that the branch channel remains substantially filled while the liquid in the trunk channel is flushed. The function of the branch (channel 2) and trunk channel (channel 1) described by McNeely does not meet this requirement; in fact, it is an objective of McNeely that the branch and trunk channels are both filled at one point so that the liquid in both of them can enter channel 1 in parallel thereby permitting mixing downstream of region b. This is opposite of the presently invention that requires that the trunk channel can be separately emptied while liquid is withheld in the branch channel. This functionality is not possible with the design of McNeely in which the impedance/valve function at region b is destroyed when liquid is reaching the region via channel 1. Applicants remind the Examiner that a functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it conveys to a person skilled in the art. See MPEP 2173.05g. For example, the courts have held that a functional limitation is acceptable because it can set definite boundaries on the patent protection sought. *In re Barr*, 444 F.2d 588, 170 USPQ 33 (CCPA 1971). Thus, the functional limitation of claim 1 provides patentable weight, which should be considered by the Examiner. See e.g., *In re Ludtke*, 444 F.2d 660, 169 USPQ 563, 566 (CCPA 1971); *In re Swinehart*, 439 F.2d 210, 169 USPQ 226, 228-29 (CCPA. 1971); and *In re Barr*, 444 F.2d 588, 170 USPQ 33 (CCPA 1971).

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The Examiner mentions that other configurations of McNeely show branched chambers and channels, for example, Figures 3A-3D, 5A-5D, 7A-7D and 10A-10C, however, nowhere that Applicants can find is there any mention that these configurations meet all the limitations of claim 1, more specifically that the branch channel remains substantially filled while the liquid in the trunk channel is flushed. In view of the above arguments, Applicants assert that McNeely does not describe all the limitations of claim 1, and thus does not anticipate claims 1-12.

IV. Rejection under 35 U.S.C. § 103(a)

Claims 4-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McNeely et al. (6,591,852) in view of Kellogg et al. (6,063,589). Applicants traverse.

Since independent claim 1 is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. Thus, dependent claims, which incorporate all the limitations of independent claim 1, are nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Applicants respectfully request that the rejection be withdrawn.

CONCLUSION

In view of the above, applicant believes the pending application is in condition for allowance.

If the Examiner needs further clarification or has any further questions, the Examiner is requested to contact the below undersigned for a quick resolution.


Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2375, under Order No. HO-P02894US0 from which the undersigned is authorized to draw.

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Respectfully submitted,

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